Space Weather Forecast

Issued on Friday, 17 June 2022 at 13:04 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Daily chance of isolated M-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with only a few C-class flares originating from two particular regions, one transiting on the southwest quadrant, the other one on the northwest. The one in the northwest remains the largest and most complex region although recent imagery shows some decay. The other one, in the southwest quadrant, remained inactive for a while but is now showing signs of growth. There are 6 other numbered sunspot regions, one of which is also showing signs of growth in the northeast quadrant. All other spot groups are either unchanged in overall appearance, or showing some minor decay, and have more simplified uni-polar or bi-polar magnetic configurations.

No Earth-directed CMEs were observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was elevated, with a few brief peak into strong levels under ongoing coronal hole influences. The magnetic field strength of the solar wind was weak, with only small but frequent fluctuations in the important north-south component. Corresponding geomagnetic activity was largely Quiet to Unsettled (Kp 1 to 3), with an Active interval (Kp 4) at 16/2100-2400 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Barring new development, solar activity is expected to be mostly Low with a chance of isolated M-class flares.

Solar Wind / Geomagnetic Activity: No CMEs are currently expected to affect Earth during the period.

Solar winds are expected to remain largely elevated over the next three days, under the influence of CH90/+ then CH92/+. Solar winds should then decline on Day 4 (20th) as these features rotate away from a geo-effective position. Geomagnetic activity is expected to be mostly Quiet to Unsettled, but with a chance an Active or even a very slight chance of a G1/Minor Storm interval on Days 1, 2 and 3 (17th, 18th and 19th), should we have a prolonged period of negative Bz. Geomagnetic activity becoming largely Quiet on Day 4 (20th).

Energetic Particles / Solar Radiation: There is a daily slight chance of an S1 or greater solar radiation storm event occurring, largely a consequence of the westward transit of the more complex spot group in the southwest quadrant.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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